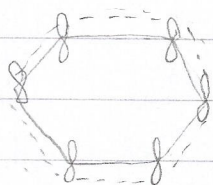


Lech

11

Polynuclear Aromatics (more than one benzene nucleus)



Parallel overlap
conjugated system

$$4n + 2A = 6 \quad \begin{matrix} +4 & +4 & +4 \\ 10 & 14 & 18 \end{matrix} \dots$$

integer

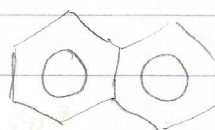
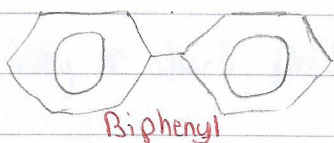
(aromatic)

Poly nuclear

Isolated (non-condensed)

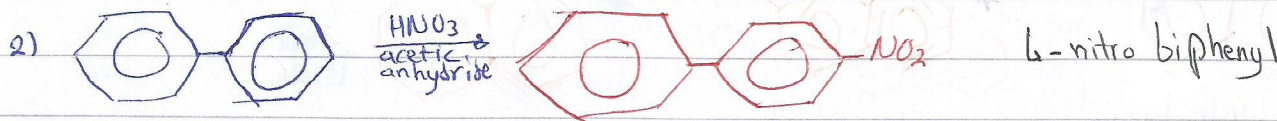
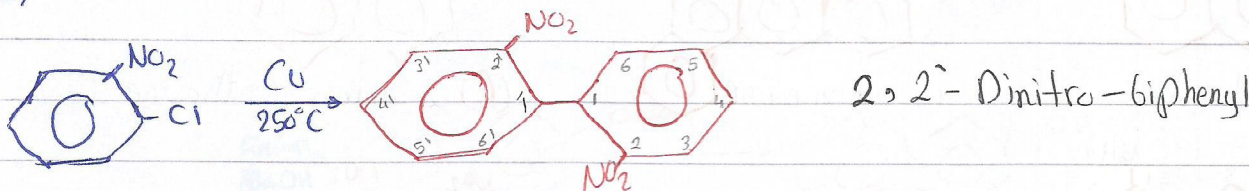
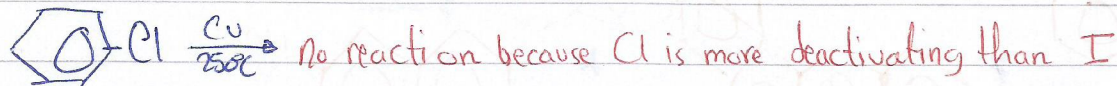
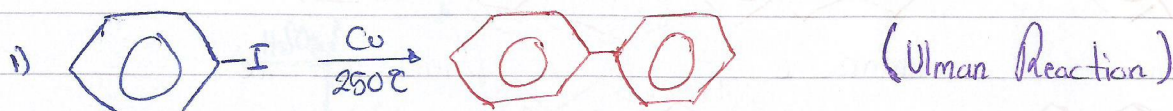
Sharing 2C atoms ortho

Condensed (Fused)

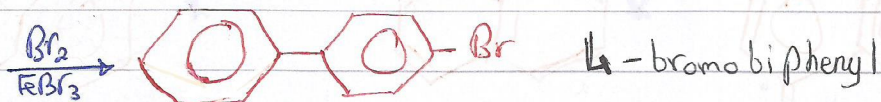
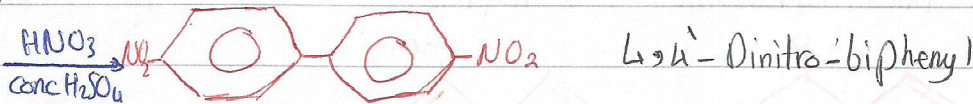


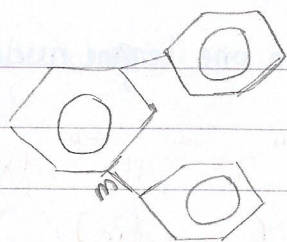
Naphthalene

Synthesis so

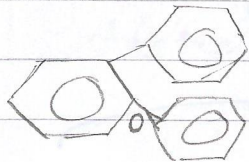


(weak O₂P-director)

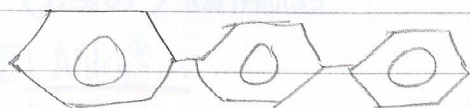




m-terphenyl

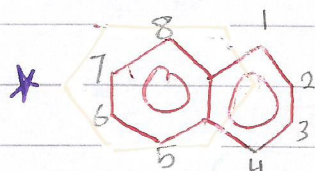


o-terphenyl

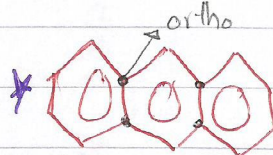


p-terphenyl

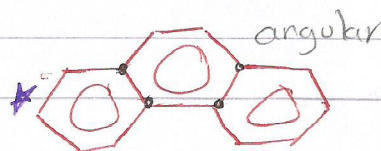
Fused Polynuclear Aromatic



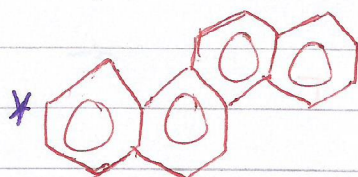
Naphthalene



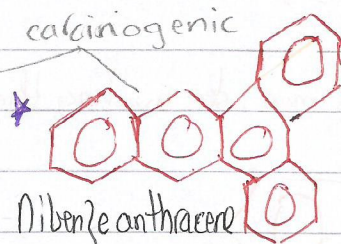
Anthracene



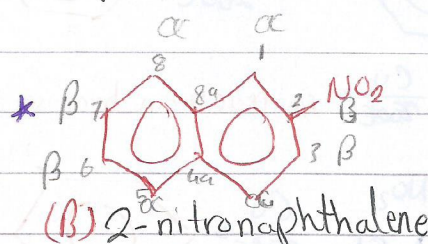
Phenanthracene



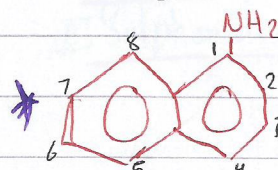
Chrysene



Benzo[a]anthracene



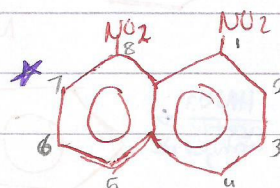
(B) 2-nitronaphthalene



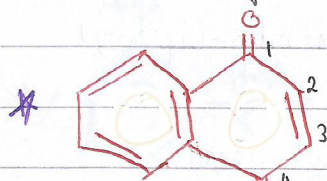
α -naphthylamine
1-Aminonaphthalene



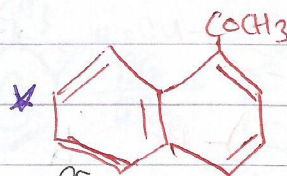
β -naphthol
2-naphthol



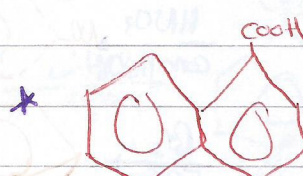
1,8-Dinitronaphthalene



1,4-Naphthoquinone

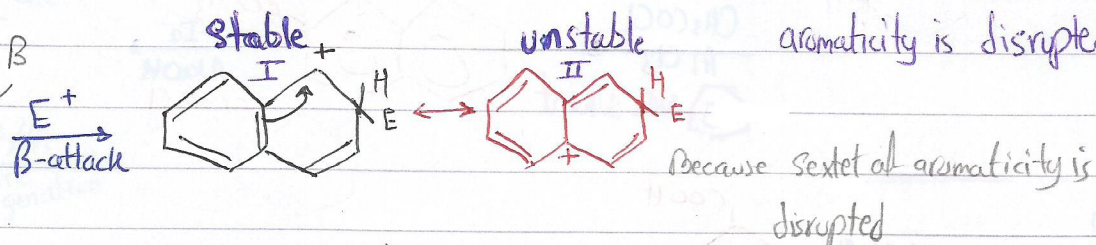
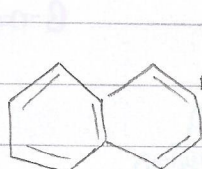
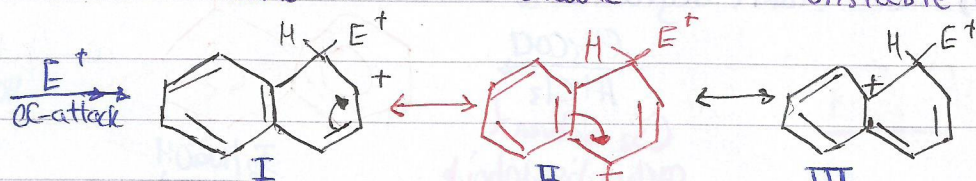
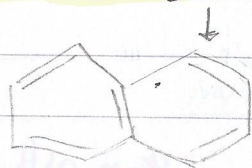


α -1-Acetonaphthalene



α -naphthoic acid

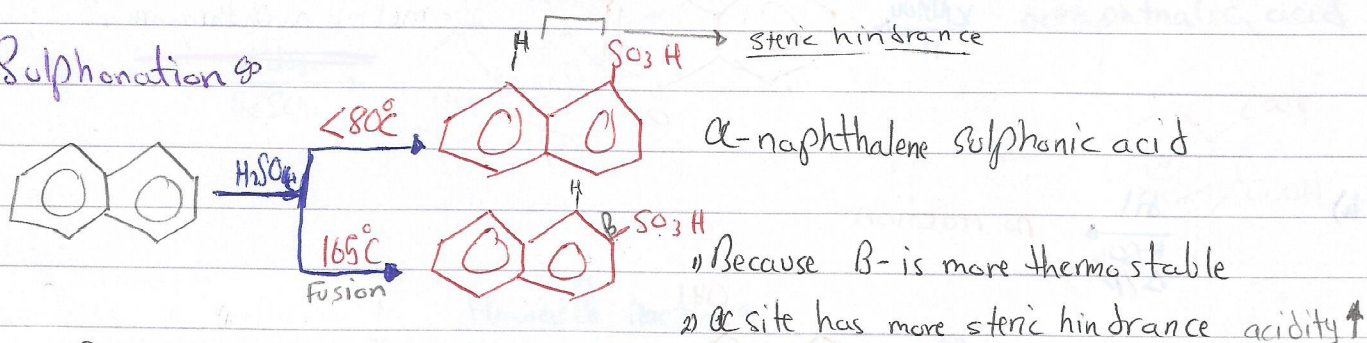
Reactions of α



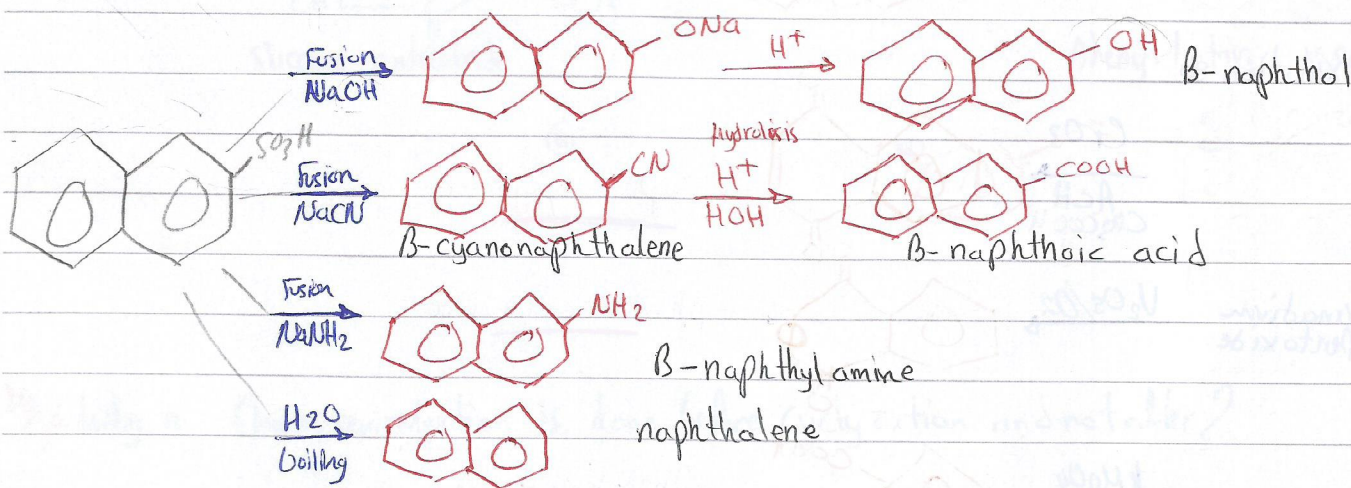
Why α attack predominates naphthalene?

Because α attack has two resonance structure.

1) Sulphonation

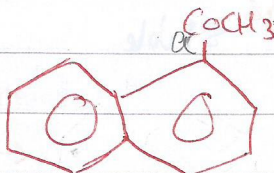
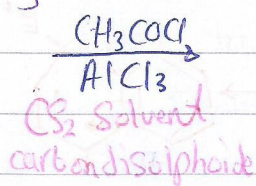
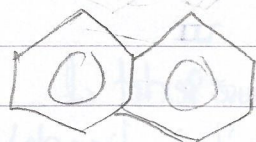


3) Used for preparing derivatives that can't be obtained directly

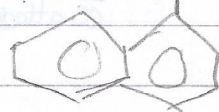
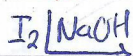


2) Friedel-Crafts acylation

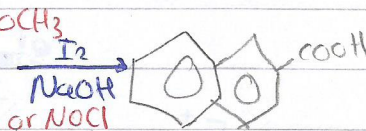
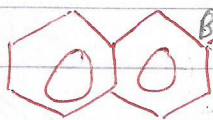
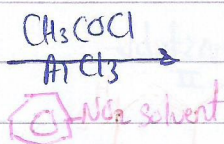
Direct



α -Acetylnaphthalene

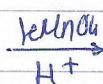
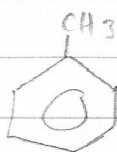


α -naphthoic acid

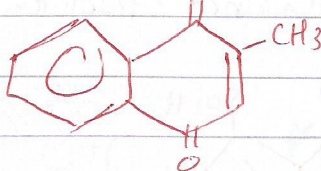
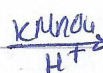
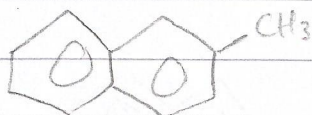


β -naphthoic acid

3)

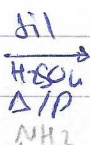
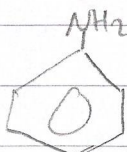


benzoic acid

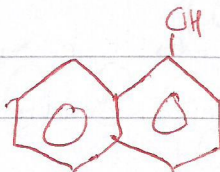
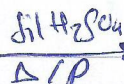
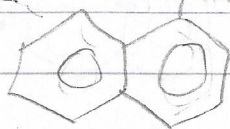


2-methylnaphthoquinone

4)

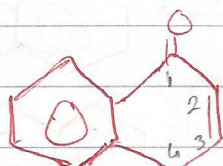
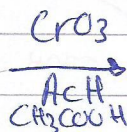
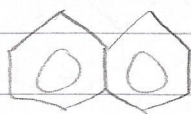


no reaction



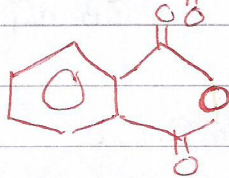
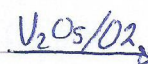
α -naphthol

5) Oxidation

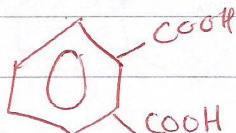
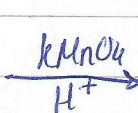


naphthoquinone

Vanadium Pentoxide



phthalic anhydride



phthalic acid

~~Q~~ Why is Clemmensen reduction is done before cyclization and not after?
Because the carbonyl function is deactivating and prevent cyclization